Fanshawe College

2019

Aircraft Structural Repair Technician Business Plan

Fanshawe College

STAGE-GATE 2

BUSINESS PLAN FOR NEW PROGRAMS

Completed Business Plans must be submitted to the Centre for Academic Excellence three weeks in advance of the next Academic Leadership Team (ALT) meeting and two weeks in advance of the next Senior Leadership Council (SLC) meeting.

Dean/Chair/Developer responsible for this new program proposal:

- Stephen Patterson, Dean, Faculty of Technology
- Larry Weir, Associate Dean, Norton Wolf School of Aviation Technology

Curriculum Consultant assigned: Melissa Barnard

Date Submitted: 4/30/2019

1.0 Program Specifications

Proposed program title: Aircraft Structural Repair Technician

Proposed credential:

☐ Local Board Approved Certificate
☒ Ontario College Certificate
☐ Ontario College Diploma
☐ Ontario College Advanced Diploma
☐ Ontario College Graduate Certificate
☐ Collaborative Degree
☐ Degree

MTCU program code (if it exists): MTCU 46600 Aircraft Structural Repair Technician

MTCU program code comparables: N/A

Proposed Classification of Instructional Program Codes, formatted as ##.####:

- 47.0607 Airframe mechanics and aircraft maintenance technology/technician

For additional information, please refer to most recent Classification of Instructional Programs (CIP) Canada published by Statistics Canada, available on http://www.statcan.gc.ca/.

Projected four-digit National Occupational Classification Codes (3 maximum), formatted as ####:

1. NOC 7315 Aircraft mechanics and aircraft inspectors

For additional information, please refer to most recent National Occupational Classification (NOC) Canada published by Statistics Canada, available on http://www.statcan.gc.ca/.	
Identify all deliveries of this or a comparable program that have been or are currently offered at Fanshawe (including CE and/or Regional Campuses): **Describe deliveries:** Deliveries of this program: • Sault College currently offers the Aircraft Structural Repair Technician program (MTCU 46600) at Fanshawe College. Fanshawe and Sault Colleges will deliver the program collaboratively in the future.	
Proposed program launch date: 2020	
Proposed intake(s):	☒ Fall ☐ Winter ☐ Spring ☐ Other:
Number of students in first intake: 20	
Length of program: • Number of semesters: 2 semesters • Semester length in weeks: 16 weeks • Total program hours: 1005 hours	
Program delivery (check as many as apply)	☒ Web-facilitated (face-to-face) ☐ Blended ☐ Online ☐ Fast-track ☐ Accelerated ☐ Collaborative ☐ Weekend ☐ Other
Co-op program	☐ No Co-operative Education component is required ☐ The Co-operative Education component is a required element ☒ There is a Co-operative Education stream and a non-Co-operative Education stream

2.0 Executive Summary

Include the following information (600 words maximum):

a) Program Overview: length, credential, description and suggested delivery options
b) Strategic Alignment: explain how this program is aligned with the indicated program area of strength and/or growth (150 words recommended maximum)
c) Competition: Local, regional, provincial and/or national fit/competition
d) Pathways: Links to further educational opportunities
e) Student Demand: interest in the program locally and provincially
f) Labour Market Demand: support for the program, job opportunities for graduates

a) Program Overview
This one-year Ontario College Certificate prepares students to repair, overhaul, and modify commercial aircraft in accordance with high standards of aviation safety. The hands-on, project-based curriculum in this program provides students with technical training for material and component assembly, fabrication, manufacturing, and repair.

This program includes an optional co-operative education stream.

This program is designed to be accredited by Transport Canada so that graduates receive 10 months towards a Transport Canada-issued Aircraft Maintenance Engineer (AME) License, Category S. The Norton Wolf School of Aviation Technology (NWSAT) will apply for Transport Canada accreditation of the program following approval of the program with the Board of Governors.

Graduates of this program will be prepared for careers with Canadian and international aircraft maintenance, repair, and overhaul organizations. NWSAT is working with the Canadian Forces so that graduates of the program who are considering a career in the Canadian Forces will have accelerated career opportunities through advanced standing as an Aircraft Structures Technician (ACS).

b) Strategic Alignment
These programs align with a program area of strength from Fanshawe College's Strategic Mandate Agreement (SMA): Aerospace.

c) Competition
Sault College currently delivers the one-year Aircraft Structural Repair Technician program at Fanshawe College. Fanshawe and Sault Colleges will deliver the program collaboratively in the future. Only one other college, Canadore College, offers this program.

d) Pathways
This program will complement existing programs offered in the NWSAT. It is expected that graduates of this program and the existing two-year Aviation Technician – Aircraft Maintenance program may be interested in completing both programs consecutively to give them additional credit (hours) toward their Transport Canada licensing and two license options – structures (S) and maintenance (M).

Alternatively, this program could be paired with the existing Applied Aerospace Manufacturing Graduate Certificate or a new Composites and Advanced Materials Aerospace Manufacturing Graduate Certificate, both of which address complementary content.

e) Student Demand
Sault College currently delivers this program at the NWSAT at Fanshawe College and has maintained consistent application and enrollment numbers for the last four years for which data are available (2014-2017). It is expected that Fanshawe and Sault College together will enroll at the least the same numbers of students as Sault College receives: 18-26 domestic students/year and 1-3 international students/year. Additionally, Saurabh Malhotra, Manager – International Recruitment and Market Development, and Wendy Curtis, Director, International, have noted that they expect to be able to recruit 10-15 international students/year for this program.

f) Labour Market Demand

According to the Canadian Council for Aviation and Aerospace (CCAA), "It is projected that the [Canadian aviation and aerospace] industry will need 5,300 new aircraft mechanics by 2025 to keep up with growth and retirements…. More than a quarter of companies which employ aircraft maintenance engineers have stated that they are experiencing hiring challenges when securing experienced maintenance or structures personnel" (CCAA, 2018).

Graduates of this program will be prepared for employment in the aviation industry under NOC 7315 aircraft mechanics and aircraft inspectors. EMSI Market Analysis (2018.3) shows expected job increases of 5% (17 jobs/year), 5% (21 jobs/year), and 6% (93 jobs/year) for the London Census Metropolitan Aggregate (CMA), Ontario, and Canada, respectively, for 2017-2026.

Provincial Key Performance Indicator (KPI) employment rate data for 2016/2017 show a 100% employment rate for graduates from Sault College's offering of this program at Fanshawe College (Sault College, 2017).

3.0 Academic Programming and Quality Assurance

3.1 Program Vocational Learning Outcomes
Consultation: CAE

→ See ***Appendix A: Form 1 – Program Vocational Learning Outcomes.***

3.2 Essential Employability Skills Learning Outcomes
Consultation: CAE

→ See ***Appendix A: Form 2 - Essential Employability Skills Outcomes.***

3.3 Program Description
Consultation: CAE and Registrar's Office

→ See ***Appendix B: Program Description.***

Resource: Refer to Recommended Admission Standard Statements document on CAE Portal

3.4 Course Descriptions
Consultation: CAE

→ See ***Appendix C: Program Curriculum.***

3.5 Relationship to Professional or Licensing Bodies
Consultation: CAE

→ See ***Appendix D: Regulatory Status Form.***

3.6 Curriculum Design and Delivery

→ See ***Appendix E: Curriculum Map - Program VLOs and EESOs.***

a) Provide rationale for curriculum design and delivery methods (e.g., face-to-face, blended, online, fast track, accelerated, collaborative; full-time vs. part-time), including work integrated learning (if appropriate):
    1. Alignment with program vocational learning outcomes
    2. Alignment with essential employability skills outcomes
    3. Suitability for target populations(s)

b) Indicate where and how existing courses may be included in this new program.
Consultation: CAE, Subject Matter Experts (SMEs), External Resources

a) **Program Content**
This one-year Ontario College Certificate program prepares students to repair, overhaul, and modify commercial aircraft in accordance with high standards of aviation safety. Emphasis is on technical training for material and component assembly, fabrication, manufacturing, and repair.

This program is designed to be accredited by Transport Canada (C) so that graduates can receive credit (time) toward a TC-issued Aircraft Maintenance Engineer (AME) license:

- To obtain credit toward a Category S AME license, the program must address all program objectives stated in STD 566.13, STD 566.17, and Appendix C, parts 1 and 4 of the TC Regulations and Standards.

The program vocational learning outcomes (PVLOs) for this program are aligned with these TC requirements. See Appendix E for the program maps showing alignment of the courses with the PVLOs and the essential employability skills (EESs).

To obtain a TC-accredited credential, students will need adhere to strict attendance and grading requirements:

- Minimum 95% attendance for the entire program
- Minimum 70% grade in each of the theory and practice portions of each course

Program Delivery
This program will be delivered face-to-face in a modular format, allowing for scaffolding of learning across each semester. This delivery method is currently successfully used in the existing Aviation Technician programs delivered in the NWSAT. The modular delivery method allows students to concentrate on learning one specific topic at a time before progressing to a new topic with each new topic building on the previous one. The modular delivery method also supports student success by making it easier for students to return to complete a course or module if they fail one so that they can still complete the training requirements for TC. In a traditional delivery model, students would need to return for 15 or 16 weeks to complete a course if they missed it/failed it the first time; with the modular delivery, they may only need to return for a couple of weeks to pick up the missing credits.

The modular delivery method also allows for space and equipment to be used more effectively. For example, some projects or tasks require that equipment or materials be used by one person/group at a time once a project/task has been started. The modular delivery allows for equipment or materials to be left out or in use until the project/task is complete unlike a traditional delivery model that would require the equipment or materials to be put away at the end of each class.

Experiential Learning
This program offers a project-based, hands-on approach to learning, integrating and connecting theory with practice across every semester. Students have the opportunity to work in the lab and on the hangar floor with actual aircraft and aircraft components, parts, and systems.

This program will also offer an optional co-operative education stream allowing students to obtain work experience in the aviation industry. At a Program Advisory Committee (PAC) meeting for the existing programs in the NWSAT on March 28th, 2019, the external stakeholders were supportive of co-operative education opportunities (see Section 5.2 Labour Market and Appendix J for further details about the

PAC meeting and participants). The optional co-operative education work term will occur at the end of the program (Semester 3), which will require that students complete a final reflective practice assignment during their work term that is evaluated by a faculty member.

b) This program will not include any existing courses from Fanshawe College. However, the program will be delivered in collaboration with Sault College that already delivers the program.

3.7 Research and Innovation

a) Describe how research and innovation will be included in the program (Policy 2-B-02).
Consultation: Centre for Research and Innovation, Subject Matter Experts (SMEs)

In this program, students will be involved in developing sound research skills through the project-based learning approach that will be used. For example, several of the projects will require students to research aircraft and materials information from a variety of sources before completing a task such as a structural repair to ensure they are using the correct, industry-approved materials and procedures to complete the task. Other projects involve a unique repair task that requires students to observe and measure the damaged aircraft/component to determine the best way to complete the repair.

This program also emphasizes troubleshooting skills that require fundamental understanding of the aircraft materials, components, systems, etc. as well as an ability to propose and test hypotheses to identify a defect or the source of a problem and determine the best way to repair the defect or eliminate the problem.

This program will complement the existing programs offered in the NWSAT by expanding the offerings of TC-accredited programs for AMEs. As such, this will allow the NWSAT to explore opportunities for developing a multi-disciplinary project (a signature innovative learning experience) that could be completed by students across the programs leading toward AME licenses in each of the three categories (Maintenance (M), Electronics or Avionics (E), and Structures (S)).

4.0 Fit of Program

4.1 Gap Analysis

a) How is the program similar to or different from existing programs at the College and what impact will this program have on existing programs at the College? For example, does the proposed program provide additional breadth to our program offerings, or does it add specific disciplinary depth?
b) Are there similar programs being offered at colleges, universities or private institutions provincially, nationally and/or internationally? If yes, provide profile of key competitors including location and a brief description and how they differentiate themselves.
c) How else is the industry need being met if not provided in the options listed in c) above (e.g. regulatory body or in-service training)?
d) What makes this program unique from the similar existing programs identified in a), b), and c) above (e.g., innovative delivery methods, unique focus on teaching and learning or a specific student population, niche programming, research strengths)?
Consultation: CAE, Institutional Research, Subject Matter Experts (SMEs), External Resources

a) This program will expand the NWSAT offerings of Transport Canada-accredited programs for Aircraft Maintenance Engineers (AMEs). There are three categories of licensing for AMEs: maintenance (M), avionics or electronics (E), and structures (S). Currently, the NWSAT delivers programs that provide graduates with accreditation towards Category M and Category E licensing:

Program	Credential/Duration	AME License Category
Aviation Technician – Aircraft Maintenance	Diploma 2 years	M
Aviation Technician – Avionics Maintenance	Diploma 2 years	E
Aviation Technology – Aircraft Maintenance and Avionics	Advanced Diploma 3 years	M and/or E

The new program will provide graduates with accreditation towards Category S licensing:

Program	Credential/Duration	AME License Category
Aviation Structural Repair Technician	Ontario College Certificate 1 year	S

b) Currently, two other colleges, Sault College and Canadore College, offer the one-year Aircraft Structural Repair Technician Certificate under the same MTCU code:

Program	Location	Details
Aircraft Structural Repair Technician Ontario College Certificate (1 year) MTCU 46600	Sault College	• Delivered at Fanshawe College* • Aircraft structural repair and manufacturing techniques • 45-60 projects – aircraft fuselages, control surfaces, wings, composite panels, plastics and sealing procedures • 10 months accreditation toward TC AME license Category S
	Canadore College	• Assembly and repair • Fabrication • Composite manufacturing and repair techniques • 10 months accreditation toward TC AME license Category S

* Sault College currently offers the Aircraft Structural Repair Technician program (MTCU 46600) at Fanshawe College. Fanshawe and Sault Colleges will deliver the program collaboratively in the future.

c) Transport Canada (TC) must approve all training of this nature. A complete list of TC-approved basic training programs are available on the Transport Canada website (Government of Canada, 2019), which shows this training is primarily delivered by colleges/educational institutions across Canada.

d) This program will be unique from the existing programs offered at Fanshawe College and described part a) of this question by offering graduates accreditation toward the Category S AME licensing with Transport Canada.

This program will be unique from the comparable programs offered at Sault College and Canadore College and described in part b) of this questions by offering students the options of completing a co-operative education work term.

4.2 Key Performance Indicators (KPIs)

Please complete this table with the three most recent years of published data* for similar programs at your college only (minimum one, maximum three). Similar programs may include programs at the same or different credential levels, and transfer opportunities. Please add additional rows as needed.

Program		Academic Year Of Graduation	2014-2015	2015-2016	2016-2017
MTCU Title	MTCU Code				
Aviation Technician – Aircraft Maintenance	56600	Graduate Count	--	22	25
		Employment Rate**	--	77.8%	92.9%
		Employment Rate in a Related Field***	--	66.7%	50.0%
Aviation Technician – Avionics Maintenance	55211	Graduate Count	18	18	8
		Employment Rate**	100%	100%	100%
		Employment Rate in a Related Field***	62.5%	83.3%	100%

*KPIs are to be calculated in accordance with the methods prescribed by MTCU. KPIs are based on graduates of MTCU approved full-time postsecondary programs whose funding status is shown in the graduate record layout as MTCU operating grant, Co-op Diploma Apprenticeship or Second Career, and who were surveyed by telephone.
** Employment Rate = (number of survey respondents employed Full-time or part-time, related or unrelated) / (number of survey respondents in labour force)
*** Employment Rate in a Related Field = (number of survey respondents employed Full-time or part-time, related) / (number of survey respondents in labour force)

NOTE: Key Performance Indicator (KPI) employment rate data are available for 2016/2017 for the Aircraft Structural Repair Technician program currently offered by Sault College and delivered at Fanshawe College. The KPI data show a 100% employment rate in 2016/2017 (Sault College, 2017). These KPI data suggest that there are employment opportunities for graduates with structural repair and aircraft maintenance credentials.

4.4 Pathways to and from Proposed Program and Programs

a) Drawing on the gap analysis, are any program pathways anticipated or under negotiation to and/or from this program (internal and external)? If yes, describe how the existing/proposed program supports student mobility.
b) Describe any special features of this pathway (e.g., laddering, bridging).
c) How does this program fit into the provincial and national credit transfer framework? (ONCAT) (i.e., course to course vs. program to program; college to university, college to college, university to college)?
Consultation: CAE (Pathways Coordinator)

a) and b) This program will complement existing programs offered in the NWSAT. It is expected that graduates of this program and the existing two-year Aviation Technician – Aircraft Maintenance program may be interested in completing both programs consecutively to give them additional credit (hours) toward their Transport Canada licensing and two license options – structures (S) and maintenance (M).

Alternatively, this program could be paired with the existing Applied Aerospace Manufacturing Graduate Certificate or a new Composites and Advanced Materials Aerospace Manufacturing Graduate Certificate, both of which address complementary content.

c) This program will fit into the provincial and national credit transfer frameworks for course-to-course transfer between colleges.

4.5 How will this program help support the College's mission?

Strategic Mandate Agreement: This program aligns with a program area of strength from Fanshawe College's Strategic Mandate Agreement (SMA): Aerospace.

Strategic Goals: This program supports three of the College's strategic goals:

- **Goal 1: Enhance innovative practices for exceptional student learning** – This program will provide students with an exceptional learning experience at the NWSAT hangar facility where they will engage in hands-on, project-based learning activities involving actual aircraft and aircraft components, equipment, and tools (See Section 4.6 Curriculum Design and Delivery for details about the curriculum and delivery methods).
- **Goal 2: Manage enrollment growth** – This program will contribute to domestic and international enrollment growth.
- **Goal 3: Optimize use of resources** – This program will be delivered in collaboration with Sault College. Sault College is currently leasing the space at Fanshawe's campus to deliver this program. Additionally, the program will be delivered in a modular format. Both of these characteristics of the program will help to maximize the use of the resources required to deliver the programs (e.g., classroom/lab space, faculty, equipment and materials). (See Section 4.6 Curriculum Design and Delivery for details about the shared curriculum and modular delivery method.)

Integrated Master Academic Priorities Plans (iMAPP): The iMAPP identified renovations to Y building where the NWSAT programming is delivered as a capital priority to support the realization of enrollment targets and to adhere to the delivery of high quality education. This program will be delivered in existing and new space in Y building. (See Section 6.0 Feasibility of the Program for details about the space and facility requirements for these programs.)

5.0 Demand and Support for Program

5.1 Student Demand

a) Provide evidence to validate student demand and/or societal need. (e.g. Student surveys, enrolment summaries and growth trends for similar programs, system enrolments and projected growth, or demographic projections for relevant sub populations)

b) Indicate which student populations are most likely to be attracted to the program:

Persona Groups

☒ Direct

☐ Non-direct

☒ International

☐ Other (identify):

c) Include an assessment of whether this program will draw students away from existing College programs or complement existing programs.
Consultation: Registrar's Office, Recruitment, International Services, Institutional Research

a) The Aircraft Structural Repair Technician Certificate (MTCU 46600) is currently offered by Sault College and Canadore College:

As of November 21, 2018

Student Demand - MTCU 46600 - Aircraft Structural Repair Technician

	DOMESTIC - APPLICATIONS					DOMESTIC - YEAR 1 ENROLMENT				INTERNATIONAL - YEAR 1 ENROLMENT			
	2014	2015	2016	2017	2018	2014	2015	2016	2017	2014	2015	2016	2017
CANADORE	36	24	22	20	33	13	15	19	13	1	3	3	11
SAULT	50	55	62	53	81	24	18	26	19	0	3	1	2
	86	79	84	73	114	37	33	45	32	1	6	4	13

WHERE IS FANS CATCHMENT GOING?

	DOMESTIC - APPLICATIONS					DOMESTIC -YEAR 1 ENROLMENT			
	2014	2015	2016	2017	2018	2014	2015	2016	2017
CANADORE	1	1	3	0	0	0	0	1	0
SAULT	21	18	16	15	14	11	9	10	8
	22	19	19	15	14	11	9	11	8

Note: Application and Enrolment numbers are for the Fall Term only unless otherwise indicated.

- Sault College delivers the program at the NWSAT at Fanshawe College. Fanshawe and Sault Colleges will deliver the program collaboratively in the future.

Saurabh Malhotra, Manager – International Recruitment and Market Development, and Wendy Curtis, Director, International, have noted that they expect to be able to recruit 10-15 international students/year for this program.

c) This program will complement existing programs in the Norton Wolf School of Aviation Technology (NWSAT) by expanding the offerings of Transport Canada accredited programs for Aircraft Maintenance Engineers (AMEs) as described in Section 4.1 Gap Analysis part a).

This program is not expected to draw students away from existing programs.

5.2 Labour Market Demand

a) Provide evidence to validate employment demand from some or all of the following:

1. Trend data (employment trends for related employment)
2. Feedback from and support of a related Program Advisory Committee
3. Feedback from external stakeholders (Attach minutes from external stakeholder panel as appendix)

4. Other data sources (e.g., local, provincial, national and/or international economic development corporations, industry/professional associations)
5. Letters of employer support (attached as appendix)

1. Trend Data

Graduates of the proposed one-year Aircraft Structural Repair Technician program will be prepared for employment in the aviation industry under NOC 7315 aircraft mechanics and aircraft inspectors.

- EMSI Market Analysis (2018.3) shows expected job increases of 5% (17 jobs/year), 5% (21 jobs/year), and 6% (93 jobs/year) for the London Census Metropolitan Aggregate (CMA), Ontario, and Canada, respectively, for 2017-2026. See Appendix I for further details on labour market projections.

Graduates of this program may also find employment in other areas of the aviation/aerospace industry:

- Aircraft assemblers and aircraft assembly inspectors (NOC 9521):
    - EMSI Market Analysis (2018.3) shows expected job increases of 16% (50 jobs/year), 14% (50 jobs/year), and 13% (163 jobs/year) for the 100 mile radius from the London CMA, Ontario, and Canada, respectively, for 2017-2026. See Appendix I for further details on labour market projections.

According to the Canadian Council for Aviation and Aerospace (CCAA), "It is projected that the [Canadian aviation and aerospace] industry will need 5,300 new aircraft mechanics by 2025 to keep up with growth and retirements…. More than a quarter of companies which employ aircraft maintenance engineers have stated that they are experiencing hiring challenges when securing experienced maintenance or structures personnel" (CCAA, 2018).

The NWSAT is working with the Canadian Forces to ensure that graduates who are considering a career in the Canadian Forces have accelerated career opportunities through advanced standing as an Aircraft Structures Technician (ACS). Currently, graduates of the existing AME training programs offered at the NWSAT have accelerated career opportunities with the Canadian Forces based on their training in maintenance and avionics.

2. Feedback from a Program Advisory Committee/3. Feedback from External Stakeholders

A program advisory committee (PAC) meeting for the existing programs offered in the NWSAT was held on March 28th, 2019, and included members from regional companies:

- Flying Colours
- Canadian Armed Forces
- New United Goderich
- Sky Charter
- Cargo Jet
- AAR Airframe Maintenance
- Jazz Airlines
- AME Association of Ontario
- Diamond Flight Centre

The PAC members were supportive of this new program as well as the co-operative education option offered as part of the program. See Appendix J for the full list of participants and their feedback on this program.

4. Other Data Sources
According to the London Economic Development Corporation (LEDC), along with defense, aviation and composite materials-based products are driving growth in the manufacturing sector and automotive and transportation industries (LEDC, 2018).

Ontario's aerospace industry is the second largest aerospace sector in Canada and generates over $6 billion in annual sales with 80% export (Ontario Aerospace Council (OAC), 2018). With more than 200 companies, Ontario employs nearly 40,000 people with over 21,000 of those people working directly on aerospace activities from design and testing through manufacturing to full life cycle support (OAC, 2018). According to the OAC (2018), over half of the world's top 25 aerospace companies have operations in the province, and Ontario-made aerospace parts are used on virtually every commercial aircraft in the world.

According to the Canadian Council for Aviation and Aerospace (CCAA), Canada's aerospace manufacturing industry ranks 3rd in terms of research and development, behind only France and the United States, 3rd in terms of global civil aircraft production activity, and 5th in terms of GDP (CCAA, 2018). In 2017, the Canadian aerospace industry contributed close to $25 billion in GDP and nearly 190,000 jobs to the economy with nearly 75% of aerospace manufactured products exported (Innovation, Science, and Economic Development Canada (ISED), 2018). According to Innovation, Science, and Economic Development Canada, the Canadian aerospace industry is also the leader among Canadian manufacturing industries in terms of research and development activity (Innovation, Science, and Economic Development Canada, 2018).

5.3 Partnerships Supporting New Program

a) List any new internal or external partnerships that may develop if this program were to be delivered. Include letters of support in an appendix.
b) What, if any, alliances are possible to reduce costs, increase speed to market and increase market coverage?
c) How are the external stakeholders willing to support the proposed program? (check as many as apply)

☒ Continuing on Advisory Committee ☐ Teach a course

☒ Provide placement or experiential learning (e.g. co-op, field placement, mentorship)

☐ Present as a guest speaker ☐ Provide a tour

☐ Research (project, partnership etc.) ☐ Donation, Scholarship, Award

☐ Other:

Consultation: Internal and External Stakeholders

This new program will leverage existing partnerships with regional employers who hire graduates of the existing programs in the NWSAT. A program advisory committee (PAC) meeting for the existing NWSAT programs was held on March 28th, 2019. These PAC members were interested in supporting all of the programming for the three categories of AME licenses (M, E, and S) as PAC members and as employers of co-op students and graduates. See Appendix J for the full list of PAC participants and their feedback on the proposed programs.

6.0 Feasibility of Program

6.1 Multi-Year Enrolment Projections (headcount)

	2020/21			2021/22			2022/23			Ongoing		
	F	**W**	**S**	**F**	**W**	**S**	**F**	**W**	**S**	**F**	**W**	**S**
Year One of Program	30	27		30	27		50	45		50	45	
Number of Graduates		25			25			40			40	
Total Enrollment	30	27		30	27		50	45		50	45	

6.2 Human Resources

a) Include staffing plan for program, up to and including full implementation.

1. Estimate the staffing requirements that are above the existing HR complement.
2. Would there be any changes to current staffing arrangements in order to implement this new program?
3. Would there be any additional training needs?

Consultation: Human Resources, OD&L, other Schools

b) Student Services

1. What other Learner / Student Success Services are required?

Consultation: Student Success Advisor

a) and b) This program is part of a cluster of new programs under development in the NWSAT in connection with the Y building renovation project. Planning and budgeting for this initiative includes the following supports: full-time and part-time faculty, a full-time support technician, and a full-time Academic Advisor. That includes one new full-time faculty member for this program. The remainder of the programming will be delivered by non-full-time faculty.

Standard training for new faculty (e.g., Orientation to College Teaching, College Educator Development Program) will be required for the new faculty.

Jennifer Lee, Co-operative Education Consultant, and Darlene O'Neill, Director of Career and Employment Services, were consulted regarding the co-operative education option for this program.

6.3 Ministry Funding

Consultation: CAE

→ See ***Appendix F: Program Delivery Information (PDI) Form to Calculate Program Funding Parameters.***

6.4 Proposed Program Fees

Consultation: CAE, Financial Planning

Approved Postsecondary (APS) Program MTCU Table

- **Wt** - Program Weight for funding purposes: 1.8
- **FU -** Program Funding Units for funding purposes: 1.3
- Proposed annual tuition fee: $2716.50
- Fees: Regular ☒ High Demand ☐
- What tuition and ancillary fees are being charged by other colleges for similar programs?

Note: Fees listed are for 2018/2019

Institution/Program	Tuition Fees	Ancillary Fees
Sault College Aircraft Structural Repair Technician	Domestic: $3018.40 per year International: $14626 per year	Domestic: $1236.58 per year International: $2053 per year
Canadore College Aircraft Structural Repair Technician	Domestic: $3563.35 per year International: $14349.52 per year	Domestic: $1154 (Year 1) and $1029 (each Year 2 and Year 3) International: $1742 (Year 1) and $1617 (each Year 2 and Year 3) All: Material fees $450 (Year 1) and $100 (Year 2)
Fanshawe College Aviation Technology – Aircraft Maintenance and Avionics	Domestic: $4617.08 per year International: $17750.00 per year	Domestic: $1897.75 (including $500 program fee per semester) International: $1899.71 (including $500 program fee per semester)

- Proposed ancillary fees: $500 per semester (to be discussed with Office of the Registrar and negotiated with FSU)

6.5 Required Program Resources

a) **Space requirements** → See ***Appendix G: Detailed Course Delivery***

1. Can this program use existing space?
    i. If Yes,
        a. Will it differ by term or year?

b. Will it require renovations to existing space? If yes, describe.
c. Will it require designated space? If yes, describe.
d. Will additional office space be required for faculty and/or support?

ii. If No,
a. Specify the size, type and attributes of classrooms and/or space.
b. Will it require designated space? If yes, describe.
c. Can this new space be made available to other programs/Schools?
d. If there is a comparable room that serves as a model, indicate the room number_____.
e. Will additional office space be required for faculty and/or support?

Consultation: Facilities Management, Timetabling/Scheduling

1. i. This program will make use of existing space. Sault College currently offers the Aircraft Structural Repair Technician program at Fanshawe College Fanshawe and Sault Colleges will deliver the program collaboratively in the future using the same space that Sault College is currently occupying in the NWSAT.

a. The program will be delivered in a modular format, so space requirements will vary throughout each semester as detailed in Appendix G.
b. No renovations will be required for the delivery of this program.
c. This program will make use of designated lab and hangar space as detailed in Appendix G.
d. No additional office space will be required for the delivery of this program.

ii. This program is part of a cluster of new programs under development in the NWSAT in connection with the Y building renovation project. While not required for the delivery of this program, the Y building renovation project may allow for this program to be delivered in alternate spaces (e.g., new classrooms, renovated labs).

b) **Computing requirements**

1. Identify any new computers or related hardware devices needed:
   ☐ Desktop Computer ☐ Laptop ☐ Notebook ☐ Tablet
   ☐ PC based ☐ MAC ☐ IOS ☐ Android ☐ Other:
   Quantity: N/A
2. Identify connectivity requirements:
   ☐ Permanent Hardwire ☐ Wireless ☐ Power Outlet – e.g., Laptops
   ☐ Other:
3. Identify data storage requirements (excluding FOL):
   ☐ Hard Drive Only ☐ Departmental Server ☐ ITS Network Server
   ☐ Third-Party Cloud Storage ☐ Other:
4. Identify new or modified software requirements including version, licensing and cost:

   N/A

5. Identify cloud-based (online) services or products required:

   N/A

6. Can the proposed hardware and software run on the College's networks? If no, describe what is required.
7. Estimate the computing requirements required for startup of all levels (e.g., lab sizes required, specific hardware requirements).
8. Estimate the computing requirements for ongoing delivery of the program (up to the 5th year) (e.g., estimated lab sizes required, specific hardware requirements, equipment refresh cycle)
9. What are the implications for existing IT architecture given program size, delivery format and computing requirements?
10. Does existing IT infrastructure allow this program to be offered as proposed? If no, what is required?
11. Identify any new or modified classroom teaching technology required to offer the program (e.g., projectors, audience response systems [clickers], touch-enabled displays, other):
12. Are there specific IT staff support needs for the program? If yes, describe.

Consultation: Information Technology Services

This program is part of a cluster of new programs under development in the NWSAT in connection with the Y building renovation project. While there are no specific additional computing resources are required for the delivery of this program, the Y building renovation project will involve enhancements to the IT infrastructure.

ITS Employee(s) Consulted: Brody Lavoie Sent to: Craig Reed, Senior Manager, Network Services and Operations ITS Notes: N/A

c) **Marketing Resources** - Discuss marketing strategies with R & BM to reaching the appropriate student populations for this program.

Consultation: Reputation and Brand Management (R & BM)

This program is part of a cluster of programs under development in the NWSAT in connection with the Y building renovation project. As such, program-level and School-level marketing plans will developed. Additionally, this program will be delivered collaboratively with Sault College, so the two colleges will need to consult regarding marketing efforts. R & BM Employee(s) Consulted: Audrey McLoughlin, Devin Robinson, Joanna Dales, Courtney Ecker, Elaine Gamble

d) **Learning Resources -** Include collections and/or online resources required.

Consultation: Library

This program will make use of existing resources used in the existing Aircraft Maintenance programs offered in the NWSAT. Such resources include online materials from Transport Canada, aircraft manuals and documentation, and aircraft repair training DVDs.

Research and Curriculum Librarian Megan Anderson has confirmed that the library will be able to support the NWSAT in obtaining any additional resources that may be required for the delivery of this program.

Library Employee(s) Consulted: Megan Anderson

6.6 Cost of Program

See ***Appendix H: Multi-Year Budget Projections with Net Present Value (NPV).***

a) **Capital requirements**

1. Specify the capital requirements required for startup. Consider:
    i. New space/building
    ii. Facility renovations, additions and/or improvements
    iii. Classroom and/or laboratory equipment
    iv. Computers, software and IT infrastructure
    v. Program related equipment (e.g., machinery, tooling)
    vi. Non-academic furniture & office equipment
    vii. Academic furnishings
    viii. Marketing materials
    ix. Staffing (FT, NFT, Technicians, Support)
2. Estimate the capital requirements for ongoing delivery of the program (up to the 5th year).
3. Specify the amount of capital investment required to implement this program that is beyond your existing capital allotment. If this exceeds $1 Million, also the source of these funds.
4. Specify the type of equipment and infrastructure enhancements needed to operationalize delivery of the program (electrical upgrade, water, eye wash station, fume hood, etc.).
5. Identify special lab amenities/attributes (functional requirements noted in 6.5 a) that impact 6.5 b)).
6. Are there any prerequisites or special considerations that will affect the timing of this proposal?

Consultation: Faculty, Chair, Program/Ops Manager, HS&S, Facilities Management

Capital requirements are being addressed at a project level rather than the program level. This program is part of a cluster of new programs under development in the NWSAT. This project involves the renovation of Y building to allow for delivery of the new programming there. Donna Derer, Dean, Academic Quality and Strategic Integration, conducted the financial analyses in consultation with the NWSAT and service departments involved in this project.

1. Capital Requirements for Start-up:

- Facility renovations, additions and/or improvements
- Classroom and/or laboratory equipment
- Computers, software and IT infrastructure

- Non-academic furniture and office equipment
- Academic furnishings
- Staffing (FT, NFT, Technicians, Support)

2. Capital Requirements On-going:

- Facility renovations, additions and/or improvements
- Classroom and/or laboratory equipment
- Computers, software and IT infrastructure
- Non-academic furniture and office equipment
- Academic furnishings
- Staffing (FT, NFT, Technicians, Support)

3. Capital Investment:

- As noted above, capital requirements are being addressed at the project level.

4. Equipment and Infrastructure Enhancements:

- Equipment and infrastructure purchases and enhancements are being considered as part of this renovation project and include sheet metal lab tools, composite lab tools, and miscellaneous materials that are already on site (Sault College) and new tools/materials. The overall cost of these materials is expected to be between $35,000 and $50,000. Where possible, equipment that is already on site will be purchased by or from Sault College, which may lower the cost.

5. Special Lab Amenities/Attributes:

- N/A

6. Prerequisites/Special Considerations:

Board of Governors' approval of the renovation project is required and will be requested at the January 27th, 2019 Board of Governors' meeting.

b) **Multi-year Budget**

1. Outline any budgetary assumptions.
2. Specify the budget requirements required for ongoing delivery of the program. Consider:
    i. New space/building
    ii. Facility renovations, additions and/or improvements
    iii. Classroom and/or laboratory equipment
    iv. Computers, software and IT infrastructure
    v. Program related equipment (e.g., machinery, tooling)
    vi. Non-academic furniture & office equipment
    vii. Academic furnishings
    viii. Marketing materials
    ix. Staffing (FT, NFT, Technicians, Support)
3. What is the proposed Net Present Value (NPV)?

Consultation: Financial Planning

These programs are part of a cluster of new programs under development in the NWSAT.

1. Budgetary Assumptions:

- Grants calculated for the new programs are based on anticipated weight/funding units.
- Space calculations were done for the maximum section size; revenue calculations were more conservative (See Section 6.1 Multi-year Enrollment Projections).
- Domestic tuition will be the same as the tuition rate at Sault College.
- Domestic tuition rates are held flat over the five-year period.
- International tuition is assumed to increase by 3% per year.
- There will be one new full-time faculty member for this program, and full-time salaries increase by 2% each year and move a grid step.

2. Budget Requirements (for this program and shared by the programs to be delivered at the new site):

- Facility renovations, additions, and/or improvements
- Classroom and/or laboratory equipment
- Computers, software and IT infrastructure
- Non-academic furniture and office equipment
- Academic furnishings
- Marketing materials
- Staffing (FT, NFT, Technicians, Support)

3. Net Present Value (NPV):

- The net present value for the one-year Aircraft Structural Repair Technician program is $857,934.
- The NPV calculations only include the program operating expenses. The renovation costs are accounted for at the project level for the Y building renovation project.
- Donna Derer conducted additional financial analyses in consultation with the NWSAT and service departments involved in this project to renovate Y building and deliver the new programming there. The budget that was produced for that project showed positive revenues in the first five years of program delivery that were assessed in the budget.

6.7 Alternative Sources of Funding

a) Are there alternative sources of funding for this program (*e.g.*, donations, repurposing, partnerships)?

Consultation: Advancement and Alumni Office, External Resources

A donation to the School/College from Norton Wolf will provide academic equipment and supplies to support the cluster of new programs that are under development in the NWSAT. The donation is being allocated over the first four years of the five-year business plan for the Y building renovation project that supports the development of this cluster of new programs.

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Ontario College Quality Assurance Service

Service de l'assurance de la qualité des collèges de l'Ontario

Basic Information

Program Title: Aircraft Structural Repair Technician

MTCU Code: 46600

Proposed Credential: Please select one (1).

- ☐ Local Board Approved Certificate
- ☒ Ontario College Certificate
- ☐ Ontario College Diploma
- ☐ Ontario College Advanced Diploma
- ☐ Ontario College Graduate Certificate

Funding:

This proposal will be sent to the MTCU for Approval for Funding.

- ☒ Yes
- ☒ No

Indicate whether the funding would be:

- ☒ Full-time
- ☐ Part-time

Program Description

Program purpose - include occupational areas where it is anticipated graduates will find employment:

The one-year Ontario College Certificate prepares students to repair, overhaul, and modify commercial aircraft in accordance with high standards of aviation safety. The hands-on, project-based curriculum in this program provides students with technical training for material and component assembly, fabrication, manufacturing, and repair.

This program is designed to be accredited by Transport Canada so that graduates receive 10 months towards a Transport Canada-issued Aircraft Maintenance Engineer (AME) License, Category S.

Graduates of this program will be prepared for careers with Canadian and international aircraft maintenance, repair, and overhaul organizations.

This program includes an optional co-operative education work term.

Admissions Requirements for the proposed program:

OSSD with courses from the College (C), University (U), University/College (M), or Open (O) stream WITH:
- Any Grade 12 English (C) or (U)
- Any Grade 12 Mathematics (C) or (U)

OR

Academic and Career Entrance Certificate (ACE)
OR
Pre-Technology Ontario College Certificate
OR
Ontario High School Equivalency Certificate (GED) AND:
- Any Grade 12 Mathematics (C) or (U)
OR
Mature Applicant with standing in the required courses stated above

English Language Requirements

Applicants whose first language is not English will be required to demonstrate proficiency in English by one of the following methods:

- A Grade 12 College Stream or University Stream English credit from an Ontario Secondary School, or equivalent, depending on the program's Admission Requirements
- Test of English as a Foreign Language (TOEFL) test with a minimum score of 550 for the paper-based test (PBT), or 79 for the Internet-based test (iBT), with test results within the last two years
- International English Language Testing System (IELTS) Academic test with an overall score of 6.0 with no score less than 5.5 in any of the four bands, with test results within the last two years.
- Canadian Academic English Language (CAEL) test with an overall score of 60 with no score less than 50 in any of the four bands, with test results within the last two years
- Pearson Test of English Academic (PTE) with a minimum score of 53, with test results within the last two years
- A Cambridge English Test (FCE/CAE/CPE) with an overall score on the Cambridge English Scale of 169 with no language skill less than 162, with test results within the last two years
- An English Language Evaluation (ELE) at Fanshawe College with a minimum score of 70% in all sections of the test, with test results within the last two years
- Fanshawe College ESL4/GAP5 students: Minimum grade of 80% in ESL4/GAP5 Level 8, 75% in ESL4/GAP5 Level 9, or 70% in ESL4/GAP5 Level 10

Recommended Academic Preparation

- Grade 12 Transportation Technology (C)
- Grade 11 or Grade 12 Physics (C) or (U)
- It is recommended that students in the Academic and Career Entrance Certificate (ACE) program take a Technical or Apprenticeship Mathematics course within the ACE program.

Applicant Selection Criteria

Where the number of eligible applicants exceeds the available spaces in the program, the Applicant Selection Criteria will be:

1. Preference for Permanent Residents of Ontario
2. Receipt of Application by February 1st (After this date, Fanshawe College will consider applicants on a first-come, first-served basis until the program is full)
3. Achievement in the Admission Requirements

Occupational Areas:

This program is designed to be accredited by Transport Canada so that graduates receive 10 months towards a Transport Canada-issued Aircraft Maintenance Engineer (AME) License, Category S.

Graduates of this program will be prepared for careers with Canadian and international aircraft maintenance, repair, and overhaul organizations.

Laddering Opportunities:

Graduates of this program will be eligible to receive advanced standing into the Aviation Technology – Aircraft Maintenance and Structures Advanced Diploma program at Fanshawe College, allowing them to complete the program in two additional years.

Program VLOs

Provincial Vocational Program Outcomes ☐ Provincial Program Standard, *or* ☒ Provincial Program Description *MTCU code*: 46600	**Proposed Program Vocational Learning Outcomes**	**Please explain how the proposed VLO differs from the Provincial VLOs**	**Course Code /Course Title**
1. Safely use the tools, equipment and identify materials needed to carry out various sheet metal repairs. 3. Identify and order airframe parts with the use of Maintenance and Parts Manuals to complete necessary repairs. 10. Recognize basic hand tools and demonstrate their use for specific maintenance on floats, fuselage structures and control systems. 12. Use specialized equipment such as reamers, taps, and dies to complete a detailed repair as per manufacturer's specifications. 15. Fabricate float and hull repairs using specialized equipment for float repairs.	1. Complete minor and major maintenance, assembly, fabrication, and structural repair work on large or small, fixed or rotary wing aircraft using the appropriate tools and equipment.	Rewrite PVLOs to align with PVLOs for outcomes under 56600 and 66600.	See Appendix E for program mapping.
	2. Diagnose malfunctions and defects or other problems in metallic and composite structures, instruments, and related components using technical manuals, drawings, blueprints, engineering orders, and standards of performance and safety.	Rewrite PVLOs to align with PVLOs for outcomes under 56600 and 66600.	
	3. Complete airworthiness directives, manufacturers' service bulletin, and engineering modification tasks on aircraft systems and metallic and composite structures.	Rewrite PVLOs to align with PVLOs for outcomes under 56600 and 66600.	
	4. Dismantle and reassemble airframes for repair and overhaul.	Rewrite PVLOs to align with PVLOs for outcomes under 56600 and 66600.	
	5. Evaluate the structural integrity of airframes prior to and during disassembly to prevent further damage to the airframe.	New PVLO to align with PVLOs for outcomes under 56600 and 66600.	

2. Demonstrate a working knowledge of the principles of aircraft design by applying theory and shop practice.	6. Design and generate damage reports, shop sketches and rectification statements and use design criteria to generate damage repair schemes.	Rewrite PVLOs to align with PVLOs for outcomes under 56600 and 66600.	
13. Fabricate sheet metal parts with the use of shop equipment and manuals.	7. Identify and employ modern manufacturing techniques with advanced composite and sheet metal structures.	Rewrite PVLOs to align with PVLOs for outcomes under 56600 and 66600.	
9. Apply weight and balance formulas	8. Perform weight and balance calculations to ensure accurate aircraft information is available for flight and loading.	Rewrite PVLOs to align with PVLOs for outcomes under 56600 and 66600.	
4. Read and follow blueprint, shop drawings and manufacturer's manuals necessary in all manufacturing and overall facilities. 7. Refer to specific aircraft manuals such as Aircraft Pocket Manual and Hardware Manual to determine safe and acceptable procedures and parts. 11. With the use of manuals quickly locate and pinpoint station locations on fuselage construction and wing structures.	9. Interpret written instructions, schematics, manufacturers' specifications, technical drawings, manuals, and computer-based information while performing routine and unscheduled tasks.	Rewrite PVLOs to align with PVLOs for outcomes under 56600 and 66600.	
14. Apply Department of Transport regulations to paperwork and authorization licences to release aircraft back to service	10. Maintain detailed inspection, repair, maintenance, and certification records and reports to meet industry regulations and logbook requirements.	Rewrite PVLOs to align with PVLOs for outcomes under 56600 and 66600.	
5. Organize work safely, economically, and efficiently. 6. Carry out any repair according to specifications, stated job procedures and the	11. Perform all work in accordance with health and safety regulations, manufacturers' specifications, Canadian Aviation Regulations and Transport Canada guidelines, and company practices, policies, and procedures.	Rewrite PVLOs to align with PVLOs for outcomes under 56600 and 66600.	

requirements of the Department of Transport Regulations. 8. Demonstrate a sense of responsibility and appreciation of the high cost of the equipment and materials used to train the practical portion of this program. 16. Demonstrate honesty and integrity to match the requirements of the aircraft industry.			

Add additional rows as required to complete the mapping exercise

Program EESs

Skill Categories	Defining Skills Skill areas to be demonstrated by the graduates	Essential Employability Skills Outcomes The graduate has reliably demonstrated the ability to:	Course Title / Course Code
Communication	• Reading • Writing • Speaking • Listening • Presenting • Visual Literacy	• communicate clearly, concisely, and correctly in the written, spoken, and visual form that fulfils the purpose and meets the needs of the audience	See Appendix E for program mapping.
		• respond to written, spoken, or visual messages in a manner that ensures effective communication	
Numeracy	• Understanding and applying mathematical concepts and reasoning • Analysing and using numerical data • Conceptualizing	• execute mathematical operations accurately	
Critical Thinking & Problem Solving	• Analysing • Synthesizing • Evaluating • Decision-making • Creative and innovative thinking	• apply a systematic approach to solve problems	
		• use a variety of thinking skills to anticipate and solve problems	
Information Management	• Gathering and managing information • Selecting and using appropriate tools and technology for a task or a project • Computer literacy • Internet skills	• locate, select, organize, and document information using appropriate technology and information systems	
		• analyse, evaluate, and apply relevant information from a variety of sources	
Inter-personal	• Team work • Relationship management • Conflict resolution	• show respect for the diverse opinions, values, belief systems, and contributions of others	

Skill Categories	Defining Skills Skill areas to be demonstrated by the graduates	Essential Employability Skills Outcomes The graduate has reliably demonstrated the ability to:	Course Title / Course Code
	• Leadership • Networking	• interact with others in groups or teams in ways that contribute to effective working relationships and the achievement of goals	
Personal	• Managing self • Managing change and being flexible and adaptable • Engaging in reflective practice • Demonstrating personal responsibility	• manage the use of time and other resources to complete projects	
		• take responsibility for one's own actions, decisions, and consequences	

Program Curriculum

Level	Course Code	# of Hours	Course Title:	Course Description	Gen. Ed. Course *(indicate with an X)*
1	AVIA-XXX1	30	Shop Management and Safety	This course is an introduction to the Aircraft Maintenance Engineer (AME) category S license. It outlines the regulations, requirements and processes as well as the roles and responsibilities of the AME in the shop/hangar environment. The course also provides study of general tools and tools specific to aviation and how they are safely used on the materials of the aircraft industry.	
1	AVIA-XXX2	60	Technical Drawings/Information Interpretation	In this course, students will gain the knowledge and skills necessary to read and interpret aircraft schematics and technical drawings. They will use schematics, technical drawings, and manufacturers' publications and standard to identify fixed and rotary wing aircraft components and systems, assess damaged aircraft structures, and prepare damage reports. Students will also generate shop sketches, fastener layouts, and paperwork rectification statements.	
1	AVIA-XXX3	45	Mechanics of Flight	This course involves the study of the fundamental aerodynamic principles governing flight of fixed and rotary wing aircraft. Emphasis is on the devices and components used for aircraft control and flight performance.	
1	AVIA-XXX4	60	Aircraft Structures	This course involves the study of aircraft structures and materials maintenance, including the types of hardware used in the construction of modern aircraft as well as structural repair techniques and modifications.	
1	AVIA-XXX5	225	Repairs – Introduction	In this course, students will use industry repair manuals to identify the appropriate procedures to use to perform repairs on the sheet metal structural components used in aircraft construction. In the laboratory, students will practice	

Level	Course Code	# of Hours	Course Title:	Course Description	Gen. Ed. Course *(indicate with an X)*
				and develop their riveting skills, install and remove fasteners, and perform layout procedures and bend calculations. They will also complete repair processes such as countersinking, dimpling, and micro-shaving.	
1	AVIA-XXX6	30	Mathematics for Aircraft Maintenance	This course involves the study of technical mathematics as it applies to aircraft structural repair work. Students will take measurements and perform calculations to solve applied problems, including bends, weight and balance, centre of gravity, ratios, and trigonometry.	
1	AVIA-XXX7	30	General Hand Tools	*I*n this course, students will implement or practice shop safety practices using the hand tools used for aircraft structural repairs, including precision measuring instruments.	
1	AVIA-XXX8	30	Composites – Introduction	This course introduces the student to the modern composite materials and processes used to manufacture and repair aircraft structural components. Shop safety and materials handling guidelines are emphasized.	
2	AVIA-XXX9	45	Aircraft Systems	This course provides a comprehensive overview of various aircraft systems, including their operation and applicable service and maintenance tasks. Topics include fluid lines, aircraft cable construction, ice and rain protection, hydraulic systems, landing gear systems, fire protection and propulsion systems.	
2	AVIA-XX10	195	Repairs – Advanced	This course will build on students' knowledge and skills for performing aircraft structural repairs, including such topics as, spar and bulkhead repair. In addition, students will learn control surface repair, wood and fabric repair, corrosion treatment and control, advanced fasteners and the use of	

Level	Course Code	# of Hours	Course Title:	Course Description	Gen. Ed. Course *(indicate with an X)*
				jigs. Most repairs will involve forming aluminium alloy from flat stock.	
2	AVIA-XX11	30	Plastics and Sealants	In this course, students will identify and apply the methods for manufacturing and repairing aircraft plexiglass components and for applying sealants.	
2	AVIA-XX12	30	Non-Destructive Testing	The students will research the types of non-destructive testing methods used by the aircraft industry and identify the advantages, disadvantages, and procedures for each NDT method. This course will emphasize Dye Penetrant, Magnetic Particle Inspection, Visual, and Radiographic inspection procedures.	
2	AVIA-XX13	30	Metallurgy and Heat Treating Processes	Metallurgy is the study of metals, their properties, and, in relation to aircraft, their structural applications. This course will involve the examination of topics such as ferrous and non-ferrous metal, heat treatment processes for steel and aluminium alloys, and mechanical properties, including hardness. In this course, students will identify how to apply different heat-treating processes for improving metals for aircraft structural use.	
2	AVIA-XX14	30	Canadian Air Regulations	In this course, students will be introduced to the various sections of Transport Canada's Aviation Regulations (CARs). Topics include applicable regulations, technical records, aeronautical publications and paperwork forms for the aviation industry.	
2	AVIA-XX15	135	Composites – Advanced	This course builds on students' knowledge of composite materials and the repair of composite aircraft parts. Students will build and repair aircraft structural components using advanced composite materials, manufacturing techniques, and repair methods.	

Add additional rows as required to complete the curriculum chart.

Certification/Accreditation

There is a legislative requirement that program graduates must be certified or licensed by a regulatory authority to practice or work in the occupation:

☒ Mandatory recognition of a regulatory authority exists and is being sought.
(Please refer to Section A below- *Mandatory Regulatory Requirements*)

There is a voluntary (i.e., not required by legislation) licensing or certification for entry to practice in the profession or trade:

☐ Voluntary recognition of a regulatory authority IS being sought.
(Please refer to Section B below- *Recognition by Voluntary Association*)

☐ Voluntary recognition is NOT being sought.
(There may be titling implications for programs that are not seeking recognition in an area where existing programs have secured recognition.)

Please explain why:

There is no recognition:

☐ None exist.

Section A: Mandatory Regulatory Requirements

Where licensing or certification is required by legislation for entry to practice in the profession or trade, the Ministry of Training, Colleges and Universities requires that colleges ensure that their programs will meet the requirements of the regulatory body in order to be approved for funding.

Name of regulatory authority:

Transport Canada

Status (please select ALL that apply)

☐ Accreditation or approval by the regulatory authority / designated third party received.

Date of recognition:

☒ The college is working toward accreditation with the regulatory authority/ designated third party.

Describe current status of application:

At present, the Fanshawe College Transport Canada Regulator has been made aware of the proposed program, and the appropriate applications are being sought. Fanshawe College is currently an Approved Training Organization (ATO) with Transport Canada for delivery of three programs: Aviation Technician – Aircraft Maintenance, Aviation Technician – Avionics Maintenance, and Aviation Technology – Aircraft Maintenance and Avionics. Detailed curriculum documents will need to be presented to Transport Canada to have this proposed Aircraft Structural Repair Technician program approved.

Expected date of recognition:

Summer 2019

☐ The regulatory authority does not accredit educational programs directly or through designated third party. Formal acknowledgement (e.g. in its published or legislated registration requirements) that the program graduates will be eligible to write any required certifying or registration exam(s) or that the program is otherwise recognized for the purposes of certifying or registering a graduate is being sought.

Section B: Recognition by Voluntary Association

Alternatively, colleges may choose to have a program accredited or recognized by a voluntary membership organization or association. Graduate eligibility for association recognition or adherence to standards imposed by the body is a recommendation and not a requirement for program funding approval by the Ministry of Training, Colleges and Universities.

Name of voluntary association:

Status (please select ALL that apply)

☐ Recognition has been received.

Date of recognition

Type of recognition (e.g. accreditation, graduates eligible to write membership exams, etc.)

☐ The college is working toward recognition.

Describe current status of application:

Expected date of recognition:

☐ The association does not recognize educational programs directly or through designated third party. Formal recognition (e.g. in its published requirements) that the program graduates will be eligible to write any required certifying or registration exam(s) or that the program is otherwise recognized for the purposes of certifying or registering a graduate is being sought.

Please submit an acknowledgement and/or evidence from the regulatory authority or voluntary association regarding the status of the recognition.

Contact Information

Name: Dee Morrissey	**Name**: Larry Weir

Title: Acting Director, Centre for Academic Excellence **Telephone**: 519-452-4430 ext. 5040 **E-mail**: dmorrissey@fanshawec.ca	**Title**: Associate Dean, Norton Wolf School of Aviation Technology **Telephone**: 519-452-4430 ext. 6379 **E-mail**: lweir@fanshawec.ca

APPENDIX E – Program Outcomes – Curriculum Map

PROGRAM MAPPING (Aircraft Structural Repair Technician)																	
	LEVEL ONE									LEVEL TWO							
PROGRAM VOCATIONAL LEARNING OUTCOMES **I** - Introductory **B** - Building **C** - Culminating **The graduate has reliably demonstrated the ability to: (Source: Adapted from MTCU Code 46600)**	AVIA-XXX1 Shop Management and Safety	AVIA-XXX2 Technical Drawings/Information Interpretation	AVIA-XXX3 Mechanics of Flight	AVIA-XXX4 Aircraft Structures	AVIA-XXX5 Repairs - Introduction	AVIA-XXX6 Mathematics for Aircraft Maintenance	AVIA-XXX7 General Hand Tools	AVIA-XXX8 Composites - Introduction		AVIA-XXX9 Aircraft Systems	AVIA-XX10 Repairs - Advanced	AVIA-XX11 Plastics and Sealants	AVIA-XX12 Non-Destructive Testing	AVIA-XX13 Metallurgy and Heat Treating Processes	AVIA-XX14 Canadian Air Regulations	AVIA-XX15 Composites - Advanced	**# OF COURSES EVALUATING THE OUTCOME**
1. Complete minor and major maintenance, assembly, fabrication, and structural repair work on large or small, fixed or rotary wing aircraft using the appropriate tools and equipment.		I		B	B	B	B	B		B	C	B	B	B	B	C	13
2. Diagnose malfunctions and defects or other problems in metallic and composite structures, instruments, and related components using technical manuals, drawings, blueprints, engineering orders, and standards of performance and safety.		I		B	B	B	B	B		B	C					C	9
3. Complete airworthiness directives, manufacturers' service bulletin, and engineering modification tasks on aircraft systems and metallic and composite structures.	I	I			B	B		B		B	C				B	C	9
4. Dismantle and reassemble airframes for repair and overhaul.		I	B	B	B	B				B	C					C	8
5. Evaluate the structural integrity of airframes prior to and during disassembly to prevent further damage to the airframe.	I	I		B	B	B	B	B		B	C		B	B	B	C	13
6. Design and generate damage reports, shop sketches and rectification statements and use design criteria to generate damage repair schemes.	I	I		B	B	B		B		B	C				B	C	10
7. Identify and employ modern manufacturing techniques used for advanced composite and sheet metal structures.	I	I		B	B	B		B		B	C	B	B	B	B	C	13
8. Perform weight and balance calculations to ensure accurate aircraft information is available for flight and loading.		I	B	B	B	B		B		B	C				B	C	10
9. Interpret written instructions, schematics, manufacturers' specifications, technical drawings, manuals, and computer-based information while performing routine and unscheduled tasks.	I	B		B	B	B		B		B	C	B	B	B	B	C	13
10. Maintain detailed inspection, repair, maintenance, and certification records and reports to meet industry regulations and logbook requirements.	I	I			B			B			C		B	B	B	C	9
11. Perform all work in accordance with health and safety regulations, manufacturers' specifications, Canadian Aviation Regulations and Transport Canada guidelines, and company practices, policies, and procedures.	I	I			B	B	B	B		C	C	C	C	C	C	C	13
TOTAL # OF OUTCOMES EVALUATED BY EACH COURSE	**7**	**11**	**2**	**8**	**11**	**10**	**4**	**10**		**10**	**11**	**4**	**6**	**6**	**9**	**11**	**0**
GM = General Education (mandatory) G = General Education (elective)																	

NB - Only indicate the outcomes that are Taught & Evaluated in a course

PROGRAM COORDINATOR: TBD

ACADEMIC CHAIR: Larry Weir

Date Completed: March, 2019

APPENDIX E – Program Outcomes – Curriculum Map

PROGRAM MAPPING (Aircraft Structural Repair Technician)																	
	LEVEL ONE									**LEVEL TWO**							
PROGRAM ESSENTIAL EMPLOYABILITY SKILLS OUTCOMES Indicate with an 'x' where each skill is taught and/or reinforced and evaluated. **The graduate has reliably demonstrated the ability to: (Source: Adapted from MTCU Code 46600)**	AVIA-XXX1 Shop Management and Safety	AVIA-XXX2 Technical Drawings/Information Interpretation	AVIA-XXX3 Mechanics of Flight	AVIA-XXX4 Aircraft Structures	AVIA-XXX5 General Repairs 1	AVIA-XXX6 Mathematics for Aircraft Maintenance	AVIA-XXX7 General Hand Tools	AVIA-XXX8 Composites - Intro		AVIA-XXX9 Aircraft Systems	AVIA-XX10 General Repairs 2	AVIA-XX11 Plastics and Sealants	AVIA-XX12 Non-Destructive Testing	AVIA-XX13 Metallurgy and Heat Treating Processes	AVIA-XX14 Canadian Air Regulations	AVIA-XX15 Composites - Advanced	**# OF COURSES SUPPORTING THE OUTCOME**
1. communicate clearly, concisely and correctly in the written, spoken, and visual form that fulfills the purpose and meets the needs of the audience.	x	x	x			x				x					x		**6**
2. respond to written, spoken, or visual messages in a manner that ensures effective communication.	x	x	x			x				x		x	x	x	x		**9**
3. execute mathematical operations accurately.		x	x	x	x	x		x			x	x	x	x			**10**
4. apply a systematic approach to solve problems.	x		x	x	x	x	x	x		x	x	x	x			x	**12**
5. use a variety of thinking skills to anticipate and solve problems.	x		x	x	x	x	x	x		x	x		x			x	**11**
6. locate, select, organize, and document information using appropriate technology and information systems.	x	x			x	x	x	x			x		x	x	x	x	**11**
7. analyze, evaluate, and apply relevant information from a variety of sources.	x		x	x	x		x	x		x	x	x	x	x	x	x	**13**
8. show respect for the diverse opinions, values, belief systems, and contributions of others.	x							x			x	x				x	**5**
9. interact with others in groups or teams in ways that contribute to effective working relationships and the achievement of goals.	x							x			x	x				x	**5**
10. manage the use of time and other resources to complete projects.	x	x					x	x			x	x	x	x	x	x	**10**
11. take responsibility for one's own actions, decisions, and consequences.	x				x	x	x	x			x	x	x	x		x	**10**
TOTAL # OF OUTCOMES SUPPORTED BY EACH COURSE	**10**	**5**	**6**	**4**	**6**	**7**	**6**	**9**		**5**	**9**	**8**	**8**	**6**	**5**	**8**	

PROGRAM COORDINATOR: TBD

ACADEMIC CHAIR: Larry Weir

Date Completed: March, 2019

APPENDIX F

Program Delivery Information (PDI) Form to Calculate Program Funding Parameters
Total Hours Required per Student

College: Fanshawe College Program title: Aircraft Structural Repair Technician

Indicate the number of hours that a student is required to spend in each instructional setting in each semester or level of this program. All hours in all instructional settings are to be noted.

Funded Instructional Settings*	**Semester/Level**									
	1	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**Total**
Classroom instruction	**375**	**275**								**650**
Laboratory/workshop/ fieldwork	**135**	**220**								**355**
Independent (self-paced) learning										
One-on-one instruction										
Clinical placement										
Field placement/work placement										
Small group tutorial										
TOTAL	**510**	**495**								**1005**

Non-funded Instructional Settings*	**Semester/Level**									
	1	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**Total**
Co-op work placement - Mandatory										
Co-op work placement - Optional			**300**							**300**
TOTAL			**300**							

*Definitions for each instructional setting can be found below.

Appendix G: Detailed Course Delivery

Program: Aircraft Structural Repair Technician **Starting Term: Fall**
School: Norton Wolf School of Aviation Technology **Starting Year: 2020**

Course Code	Course Name	Hours (New)	Weeks / Term	Course Status	No. of Sections	Proposed Section Size	Course Delivery Space (hours per semester - modular delivery)						Additional Comments
							Classroom	Laboratory	Dedicated Space	Computer Room	Other (describe)	None	
Level 1													
AVIA-XXX1	Shop Management and Safety	30	16	New	1	40	30						
AVIA-XXX2	Technical Drawings/Information Interpreta	60	16	New	1	40	60						
AVIA-XXX3	Mechanics of Flight	45	16	New	1	40	45						
AVIA-XXX4	Aircraft Structures	60	16	New	1	40	60						
AVIA-XXX5	Repairs - Introduction	225	16	New	1	40	90	135					Hangar
AVIA-XXX6	Mathematics for Aircraft Maintenance	30	16	New	1	40	30						
AVIA-XXX7	General Hand Tools	30	16	New	1	40	30						
AVIA-XXX8	Composites - Introduction	30	16	New	1	40	30						
	Total	**510**											
Level 2													
AVIA-XXX9	Aircraft Systems	45	16	New	1	40	45						
AVIA-XX10	Repairs - Advanced	195	16	New	1	40	75	120					Hangar
AVIA-XX11	Plastics & Sealants	30	16	New	1	40	30						
AVIA-XX12	Non-Destructive Testing	30	16	New	1	40	30						
AVIA-XX13	Metallurgy and Heat Transfer Processes	30	16	New	1	40	30						
AVIA-XX14	Canadian Aviation Regulations (CARs)	30	16	New	1	40	30						
AVIA-XX15	Composites - Advanced	135	16	New	1	40	35	100					Hangar, Composites Lab
	Total	**495**											
	TOTAL	**1005**											

Appendix H - Multi-Year Budget Proforma with Net Present Value (NPV)

Program Name: Aircraft Structural Repair
Program type: Ontario College Certificate

		Year 1	Year 2	Year 3	Year 4	Year 5	Year 6	Year 7	Year 8	Year 9	Year 10	Total
Incremental revenues												
Grants:	Notes											
Aircraft Structural Repair	1	n/a	n/a	16,894	33,788	62,969	75,255	87,542	87,542	87,542	87,542	539,073
Tuition:												
Aircraft Structural Repair	2,3,4	345,646	345,646	572,099	572,099	572,099	572,099	572,099	572,099	572,099	572,099	5,268,085
Program Specific fee **	5	0	0	0	0	0	0	0	0	0	0	0
Other associated revenue		0	0	0	0	0	0	0	0	0	0	0
sub-total		345,646	345,646	588,993	605,887	635,068	647,354	659,641	659,641	659,641	659,641	5,807,158
Incremental expenses												
Indirect salaries:												
Admin/Support staff	6.	40,460	61,904	63,142	64,405	64,405	64,405	64,405	64,405	64,405	64,405	616,337
Teaching salaries:												
Full time - number required		1	1	1	1	1	1	1	1	1	1	
- cost @	$142,281	142,281	142,281	142,281	142,281	142,281	142,281	142,281	142,281	142,281	142,281	1,422,810
Part time - hours per week req'd		34	34	34	46	46	46	46	46	46	46	
- cost @	7. see below	96,600	96,600	96,600	131,203	131,203	131,203	131,203	131,203	131,203	131,203	1,208,220
Coord stipend		1	1	1	1	1	1	1	1	1	1	
- Cost @	$3,679	3,679	3,679	3,679	3,679	3,679	3,679	3,679	3,679	3,679	3,679	36,790
Curriculum Dev. @$25k/pgm year		25,000										25,000
One time costs - facilities		0										0
fitup/equipment		0										0
Other startup		0										0
Operating expenses	8.	10,000	10,000	15,000	15,000	45,000	45,000	45,000	45,000	45,000	45,000	320,000
International Recruitment costs		49,786	49,786	82,256	82,256	82,256	82,256	82,256	82,256	82,256	82,256	757,617
sub-total		367,806	364,250	402,957	438,823	468,823	468,823	468,823	468,823	468,823	468,823	4,386,774
incremental cash inflows		-22,160	-18,604	186,036	167,064	166,245	178,531	190,818	190,818	190,818	190,818	1,420,384
	CTO%		-5%	32%	28%	26%	28%	29%	29%	29%	29%	
Net present value @	8%		$857,934									

Appendix H - Multi-Year Budget Proforma with Net Present Value (NPV)

Notes:
1. Grant value per enrolment based on existing Sault program (wght 1.8, fndg units 1.3)
2. Tuition based on Aviation program high demand (due to 3rd year common with 3 year technology pgm)
3. 50%/50% domestic/international enrolments assumed
4. Based on lvl 1 enrolment total of 30
5. Based on estimate
6. 20% of new SSA, 33% of new tech
7. Based on F/W avg of 45.5 (43 level 1, 48 lvl 2) + 3hr coord release less 2 FFT x 15hrs each. After Yr 2 students join 3rd year of Advanced Dipl. Program so no TCH in this pgm.
8. estimated materials cost

INPUT FIELDS

Tuition - domestic (per term)	lvl 1/2		$1,248.88	Aviation Tuition less Year 1 bursary holdback
	lvl 3/4		$0.00	
Grant (per term)	all levels		$4,607.46	
Program specific fee	all levels		$0.00	
Tuition - international (per term)	lvl 1/2		$7,215.40	Aviation pgm Tuition less international student recovery
	lvl 3/4		$0.00	Aviation pgm Tuition less international student recovery
Enrolment split	domestic		20%	
	international		80%	
Part time / Partial load	split %	PT	50%	
		PL	50%	
	hrly rate	PT	$89.69	
	(incl. ben's)	PL	$116.28	
Number of weeks for PT/PL			28	

Appendix H - Multi-Year Budget Proforma with Net Present Value (NPV)

YEAR 1

Enrolment table	Program name		
	Domestic	Int'l	
level 1 - Fall	6	24	30
level 2 - Winter	5	22	27
level 3	0	0	0
level 4	0	0	0
	11	46	57

Tuition rates

	Domestic	Int'l
level 1	1,248.88	7,215.40
level 2	1,248.88	7,215.40
level 3	0.00	0.00
level 4	0.00	0.00

Grant values

	Domestic	Int'l
level 1	4,607.46	0.00
level 2	4,607.46	0.00
level 3	4,607.46	0.00
level 4	4,607.46	0.00

YEAR 2

Enrolment table	Program name		
	Domestic	Int'l	
level 1 - Fall	6	24	30
level 2 - Winter	5	22	27
level 3	0	0	0
level 4	0	0	0
	11	46	57

Tuition rates

	Domestic	Int'l
level 1	1,248.88	7,215.40
level 2	1,248.88	7,215.40
level 3	0.00	0.00
level 4	0.00	0.00

Grant values

	Domestic	Int'l
level 1	4,607.46	0.00
level 2	4,607.46	0.00
level 3	4,607.46	0.00
level 4	4,607.46	0.00

Appendix H - Multi-Year Budget Proforma with Net Present Value (NPV)

YEAR 3

Enrolment table	Program name		
	Domestic	Int'l	
level 1 - Fall	10	40	50
level 2 - Winter	9	36	45
level 3	0	0	0
level 4	0	0	0
	19	76	95

Tuition rates

	Domestic	Int'l
level 1	1,248.88	7,215.40
level 2	1,248.88	7,215.40
level 3	0.00	0.00
level 4	0.00	0.00

Grant values

	Domestic	Int'l
level 1	4,607.46	0.00
level 2	4,607.46	0.00
level 3	4,607.46	0.00
level 4	4,607.46	0.00

YEAR 4

Enrolment table	Program name		
	Domestic	Int'l	
level 1 - Fall	10	40	50
level 2 - Winter	9	36	45
level 3	0	0	0
level 4	0	0	0
	19	76	95

Tuition rates

	Domestic	Int'l
level 1	1,248.88	7,215.40
level 2	1,248.88	7,215.40
level 3	0.00	0.00
level 4	0.00	0.00

Grant values

	Domestic	Int'l
level 1	4,607.46	0.00
level 2	4,607.46	0.00
level 3	4,607.46	0.00
level 4	4,607.46	0.00

Appendix I: Labour Market Projections

Market Comparison: NOC 7315 aircraft mechanics and aircraft inspectors

	Canada	Ontario	100 miles from London CMA	London
Regional Population (2017)				
Regional Overview				
Population (2017)	36,708,083	14,193,384	Insf. Data	Insf. Data
Population (2026)	39,850,310	15,338,665	Insf. Data	Insf. Data
Population Change %	+9%	+8%	Insf. Data	Insf. Data
Workforce Overview				
Aircraft mechanics and aircraft inspectors				
Job Change %	+6%	+5%	+5%	+2%
Jobs (2017)	14,287	4,033	2,786	135
Jobs (2026)	15,214	4,242	2,924	138
2017 Jobs LQ	1.00	0.73	0.73	0.67
Competitive Effect	0	-53	-44	-6

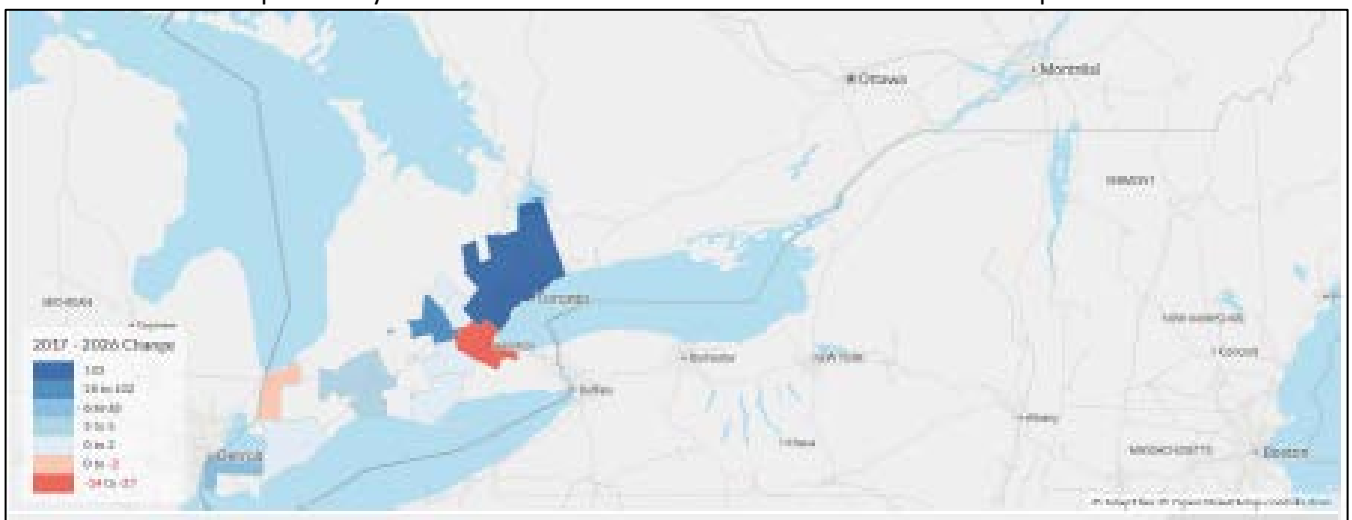
(EMSI Q3 2018 Data Set)

Market Comparison: NOC 9521 Aircraft assemblers and aircraft assembly inspectors and NOC 2244 aircraft instrument, electrical, and avionics mechanics, technicians, and inspectors

	Canada	Ontario	100 miles from London CMA	London
Regional Population (2017)				
Regional Overview				
Population (2017)	36,708,083	14,193,384	Insf. Data	Insf. Data
Population (2026)	39,850,310	15,338,665	Insf. Data	Insf. Data
Population Change %	+9%	+8%	Insf. Data	Insf. Data
Workforce Overview				
Aircraft assemblers and aircraft assembly inspectors				
Job Change %	+13%	+14%	+16%	-13%
Jobs (2017)	12,375	3,606	3,093	103
Jobs (2026)	14,007	4,107	3,600	90
2017 Jobs LQ	1.00	0.75	0.94	0.59
Competitive Effect	0	25	98	-27
Aircraft instrument, electrical and avionics mechanics, technicians and inspectors				
Job Change %	+6%	+11%	+12%	+9%
Jobs (2017)	7,168	1,804	1,139	91
Jobs (2026)	7,622	2,011	1,270	99
2017 Jobs LQ	1.00	0.65	0.60	0.90
Competitive Effect	0	93	59	2

(EMSI Q3 2018 Data Set)

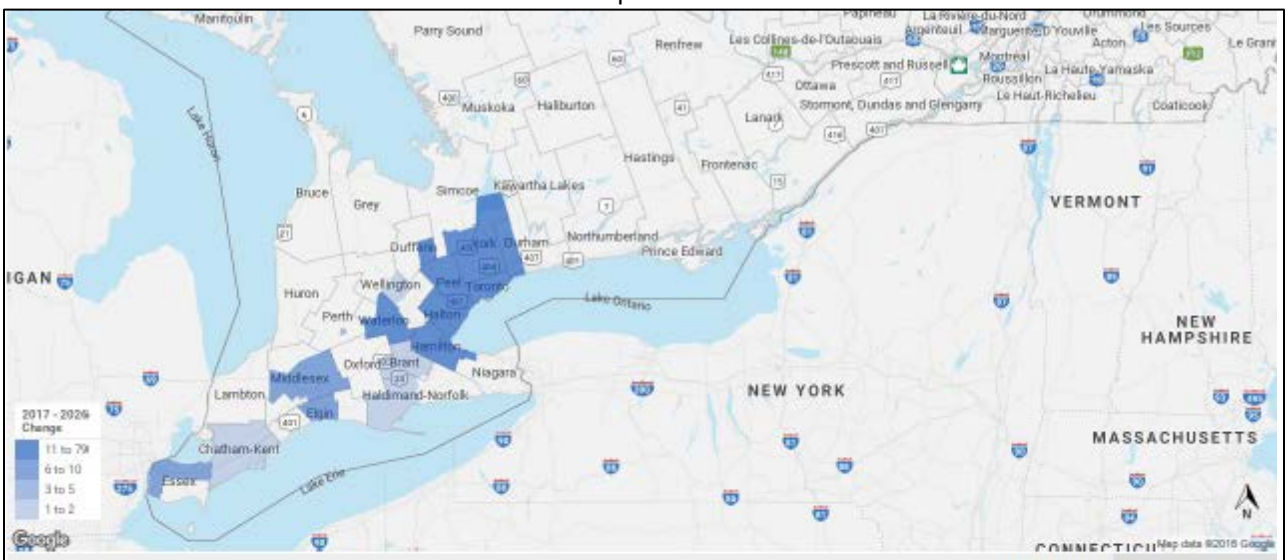
Occupations by Location: NOC 7315 aircraft mechanics and aircraft inspectors



CMA	CMA Name	2017 Jobs	2026 Jobs	2017 - 2026 % Change	2017 - 2026 Change
35535	Toronto	2,072	2,175	5%	103
35541	Kitchener--Cambridge--Waterloo	173	201	16%	28
35559	Windsor	79	86	9%	7
35553	Stratford	35	41	17%	6
35555	London	135	138	2%	3
35550	Guelph	44	45	2%	1
35556	Chatham-Kent	19	20	5%	1
35543	Brantford	14	14	0%	0
35562	Sarnia	40	39	-3%	-1
35537	Hamilton	149	135	-9%	-14
35544	Woodstock	<10	<10	Insf. Data	Insf. Data
35547	Norfolk	<10	<10	Insf. Data	Insf. Data
35533	Ingersoll	<10	<10	Insf. Data	Insf. Data
35531	Centre Wellington	<10	<10	Insf. Data	Insf. Data
35546	Tillsonburg	<10	13	Insf. Data	Insf. Data

(EMSI Q3 2018 Data Set)

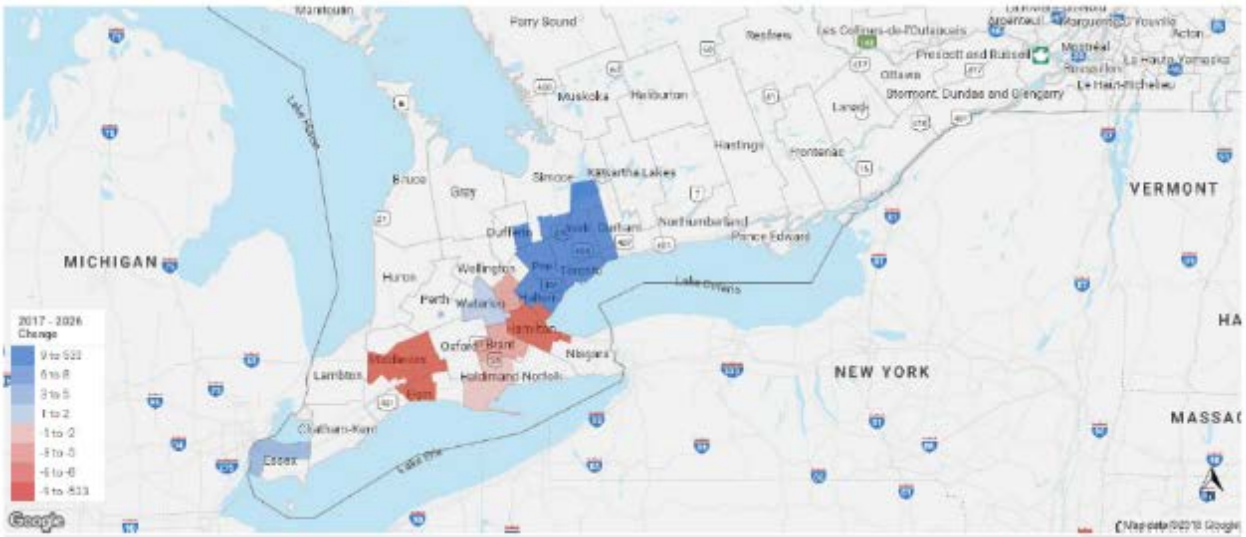
Occupations by Location: NOC 2244 aircraft instrument, electrical, and avionics mechanics, technicians, and inspectors



CMA	CMA Name	2017 Jobs	2026 Jobs	2017 - 2026 % Change	2017 - 2026 Change
35562	Sarnia	12	12	0%	0
35553	Stratford	10	14	40%	4
35559	Windsor	63	70	11%	7
35555	London	91	99	9%	8
35537	Hamilton	112	123	10%	11
35541	Kitchener--Cambridge--Waterloo	60	79	32%	19
35535	Toronto	761	840	10%	79
35550	Guelph	<10	<10	Insf. Data	Insf. Data
35533	Ingersoll	<10	<10	Insf. Data	Insf. Data
35556	Chatham-Kent	<10	<10	Insf. Data	Insf. Data
35531	Centre Wellington	<10	<10	Insf. Data	Insf. Data
35547	Norfolk	<10	<10	Insf. Data	Insf. Data
35544	Woodstock	<10	<10	Insf. Data	Insf. Data
35546	Tillsonburg	<10	<10	Insf. Data	Insf. Data
35543	Brantford	<10	<10	Insf. Data	Insf. Data
		1,139	1,270	12%	131

(EMSI Q3 2018 Data Set)

Occupations by Location: NOC 9521 Aircraft assemblers and aircraft assembly inspectors



CMA	CMA Name	2017 Jobs	2026 Jobs	2017 - 2026 % Change	2017 - 2026 Change
35535	Toronto	2,425	2,958	22%	533
35559	Windsor	71	74	4%	3
35553	Stratford	63	66	5%	3
35541	Kitchener--Cambridge--Waterloo	253	255	1%	2
35550	Guelph	29	25	-14%	-4
35555	London	103	90	-13%	-13
35537	Hamilton	105	87	-17%	-18
35533	Ingersoll	<10	<10	Insf. Data	Insf. Data
35543	Brantford	10	<10	Insf. Data	Insf. Data
35544	Woodstock	<10	<10	Insf. Data	Insf. Data
35547	Norfolk	<10	<10	Insf. Data	Insf. Data
35562	Sarnia	<10	<10	Insf. Data	Insf. Data
35546	Tillsonburg	<10	12	Insf. Data	Insf. Data
35556	Chatham-Kent	<10	<10	Insf. Data	Insf. Data
35531	Centre Wellington	<10	<10	Insf. Data	Insf. Data
		3,093	3,600	16%	507

(EMSI Q3 2018 Data Set)

Appendix J: Program Advisory Committee Feedback

Norton Wolf School of Aviation Technology – Program Advisory Committee Meeting

Thursday, March 28th, 2019
2:00 – 4:00 pm

Participants

Internal

Melissa Barnard, Curriculum Consultant, Centre for Academic Excellence, Fanshawe College
Larry Weir, Associate Dean, Norton Wolf School of Aviation Technology, Fanshawe College
Stephen Patterson, Dean, Faculty of Technology, Fanshawe College
Tracy Vanderwerf, Assistant to the Associate Dean/Academic Planner, Norton Wolf School of Aviation Technology, Fanshawe College
Tim Anderson, Program Coordinator, Norton Wolf School of Aviation Technology, Fanshawe College
Kelly Moffat, Program Coordinator, Norton Wolf School of Aviation Technology, Fanshawe College
Edward Eglinton, Program Coordinator, Norton Wolf School of Aviation Technology, Fanshawe College
Jennifer Lee, Co-operative Education Consultant, Employment & Student Entrepreneurial Services, Fanshawe College

External

Mark Anderson, Flying Colours
Steve Bidtnes, Canadian Armed Forces
Tony Breed, New United Goderich
Paul Carter, Sky Charter
Matt Fitzgerald, Cargo Jet
Jason Ivanitz, AAR Airframe Maintenance
Cesar Longeri, Jazz Airlines
Ole Neilson, AME Association of Ontario
James Quain, New United Goderich
Jamie Rady, New United Goderich
Jamie Shewaga, Canadian Armed Forces
Laurence Gauci, Diamond Flight Centre

New Programs for the Norton Wolf School of Aviation Technology

- Structural Repair
    - One-year Certificate
    - Three-year Advanced Diploma (Maintenance + Structures)
- Advanced Materials (Composites) Aerospace Manufacturing
    - One-year Graduate Certificate
- Commercial Flight and Aviation Leadership

    - Three-year Advanced Diploma
- Flight Services
    - One-year Ontario College Certificate

Summary of Proposed Programs

Proposed Program: Aircraft Structural Repair Technician

This One-year (two-semester) Ontario College Certificate program will prepare students to repair, overhaul, and modify commercial aircraft in accordance with high standards of aviation safety. The hands-on, project-based curriculum in this program will provide students with technical training for material and component assembly, fabrication, manufacturing, and repair.

Seeking Transport Canada accreditation so that graduates will receive 10 months toward a Category S AME license

Proposed Program: Aviation Technician – Aircraft Maintenance and Structural Repair

This three-year (six semester) Advanced Diploma program will provide students with the knowledge and skills required to start a career in aircraft maintenance and/or structural repair and manufacturing. This program will cover all aspects of aircraft maintenance including systems used in general aviation, corporate and charter transport-category aircraft as well as helicopters. The program will also include training in aircraft structural repair and manufacturing techniques.

Seeking Transport Canada accreditation so that graduates will receive 24 months toward a Category S and/or M AME license.

Proposed Program Vocational Learning Outcomes: Structural Repair Technician

1. Complete minor and major maintenance, assembly, fabrication, and structural repair work on large or small, fixed or rotary wing aircraft using the appropriate tools and equipment.
2. Diagnose malfunctions and defects or other problems in metallic and composite structures, instruments, and related components using technical manuals, drawings, blueprints, engineering orders, and standards of performance and safety.
3. Complete airworthiness directives, manufacturers' service bulletin, and engineering modification tasks on aircraft systems and metallic and composite structures.
4. Dismantle and reassemble airframes for repair and overhaul.
5. Evaluate the structural integrity of airframes prior to and during disassembly to prevent further damage to the airframe.
6. Design and generate damage reports, shop sketches and rectification statements and use design criteria to generate damage repair schemes.
7. Identify and employ modern manufacturing techniques with advanced composite and sheet metal structures.
8. Perform weight and balance calculations to ensure accurate aircraft information is available for flight and loading.

9. Interpret written instructions, schematics, manufacturers' specifications, technical drawings, manuals, and computer-based information while performing routine and unscheduled tasks.
10. Maintain detailed inspection, repair, maintenance, and certification records and reports to meet industry regulations and logbook requirements.
11. Perform all work in accordance with health and safety regulations, manufacturers' specifications, Canadian Aviation Regulations and Transport Canada guidelines, and company practices, policies, and procedures.

Proposed Program Vocational Learning Outcomes: Aviation Technician – Aircraft Maintenance and Structural Repair

1. Service, test, troubleshoot and repair aircraft systems on large or small, fixed and rotary wing aircraft using the appropriate tools and equipment.
2. Evaluate fixed wing and rotary aircraft structures and complete minor and major maintenance, assembly, fabrication, and structural repair work on large and small aircrafts
3. Perform scheduled and unscheduled inspections on aircraft systems, airframes, instruments, and related components to ensure they are in proper working order and meet standards of performance and safety.
4. Remove, install, and configure airframe components, aircraft power plant, and accessories on both turbine and piston engines.
5. Diagnose malfunctions and defects or other problems in aircraft systems, metallic and composite structures, instruments, and related components using technical manuals, drawings, blueprints, engineering orders, and standards of performance and safety.
6. Evaluate wear and fatigue on system and structural components using appropriate measuring devices to determine necessary repair or replacement tasks in order to maintain the aircraft's airworthiness and safety.
7. Complete airworthiness directives, manufacturers' service bulletin, and engineering modification tasks on aircraft systems and metallic and composite structures.
8. Dismantle and reassemble airframes, aircraft engines, and electrical and electronic systems for repair and overhaul.
9. Evaluate the structural integrity of airframes prior to and during disassembly to prevent further damage to the airframe.
10. Design and generate damage reports, shop sketches and rectification statements and use design criteria to generate damage repair schemes.
11. Identify and employ modern manufacturing techniques with advanced composite and sheet metal structures.
12. Perform weight and balance calculations to ensure accurate aircraft information is available for flight and loading.
13. Interpret written instructions, schematics, manufacturers' specifications, technical drawings, manuals, and computer-based information while performing routine and unscheduled tasks.
14. Maintain detailed inspection, repair, maintenance, and certification records and reports to meet industry regulations and logbook requirements.

15. Perform all work in accordance with health and safety regulations, manufacturers' specifications, Canadian Aviation Regulations and Transport Canada guidelines, and company practices, policies, and procedures.

Proposed Admission Requirements

- Required Academic Preparation
    - OSSD with courses from the College (C), University (U), University/College (M), or Open (O) stream WITH:
        - Any Grade 12 English (C) or (U)
        - Any Grade 12 Mathematics (C) or (U)
- Recommended Academic Preparation
    - Grade 12 Transportation Technology (C)
    - Grade 11 or Grade 12 Physics (C) or (U)

Co-operative Education

- Optional for three-year Advanced Diploma program
- Under investigation for one-year Certificate program

Panel Discussion

Comment on the program specifications (e.g., title, admission requirements, program size, program structure).

- Offer both programs
- Recognize the different hiring needs of defense vs. industry
    - Defense – Primarily looking for graduates with training in a specific area/for a specific license category; 1-year program is most beneficial
    - Industry – Primarily looking for graduates with training in multiple areas/for multiple license categories; 3-year program is most beneficial
- Look for ways to deliver all AME programming most efficiently
    - Consider options for offering common curriculum for M, E, and S training.
    - The PAC expressed interest in reviewing the curriculum (e.g., course titles, hours, descriptions/topics covered) to identify commonalities among the programs in these three areas.
- Continue to teach and emphasize situational awareness to ensure students are prepared and comfortable working in an aviation environment (e.g., moving around an aircraft).
- Continue to include flight line practice in the curriculum.

What are the expected trends in this industry for the next five years (e.g., employment/labour market needs, emerging fields/projects/technologies)?

- Monitor changes to licensing requirements/options
    - Transport Canada is (slowly) exploring options for changing their licensing requirements, possibly to merge M and E licensing

What types of experiential learning activities should be included in the program (e.g., hands-on learning, co-operative education)? Are there co-op jobs available for students completing an Aircraft Structural Repair Technician Certificate?

- Yes. It is expected that there will be structural repair technician co-op positions available for students completing the one-year certificate.
- Co-operative education is valuable because it gives students of an awareness of what the workplace is like; it provides students with exposure to working with multiple areas of a business (e.g., parts, planning).

What types of research and innovation activities should be included in the program?

- Consider workshops and networking opportunities to provide students with exposure to additional topics, new content, and new technologies that are currently not covered in the Transport Canada regulated curriculum.